

CLAIMS

What is claimed is:

1. A method of triggering roaming in a network device, comprising:

5 detecting a speed of the network device;

ascertaining one or more trigger values corresponding to one or more trigger events
at the speed of the network device;

maintaining one or more trigger counters associated with the one or more trigger
events; and

10 triggering roaming when one of the trigger counters associated with one of the
trigger events is equal to or exceeds one of the trigger values corresponding to the one of
the trigger events at the speed of the network device.

2. The method as recited in claim 1, wherein the network device is a Mobile Node
15 implemented in a 802.11 environment.

3. The method as recited in claim 1, wherein the network device is a Mobile Node
supporting Mobile IP.

20 4. The method as recited in claim 1, wherein roaming is triggered when the
network device has reached or is nearing a perimeter of a coverage area of an Access Point
to which the network device has associated or a Foreign Agent via which the network
device has registered with its Home Agent

5. The method as recited in claim 1, wherein roaming is triggered when the network device is no longer within a coverage area of an Access Point to which the network device has associated or a Foreign Agent via which the network device has registered with its Home Agent.

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6. The method as recited in claim 1, wherein ascertaining comprises:
obtaining the one or more trigger values from a profile, wherein the profile includes a set of one or more trigger values at a plurality of speeds.

10 7. The method as recited in claim 1, wherein the rate at which the network device roams increases as the speed of the network device increases.

8. The method as recited in claim 6, wherein the trigger values decrease as the speed of the network device increases.

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9. The method as recited in claim 1, wherein the trigger events include at least one of maximum data retry count is exceeded, maximum number of beacons missed is exceeded, data rate shift, and signal strength

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10. The method as recited in claim 9, wherein the trigger values include at least one of maximum data retry count, maximum number of beacons missed, maximum data rate shift, and minimum signal strength.

11. The method as recited in claim 10, wherein roaming is triggered when one of the trigger counters associated with the maximum data retry count is exceeded trigger event is equal to or exceeds the maximum data retry count trigger value.

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12. The method as recited in claim 10, wherein roaming is triggered when one of the trigger counters associated with the maximum number of beacons missed is exceeded trigger event is equal to or exceeds the maximum number of beacons missed trigger value.

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13. The method as recited in claim 10, wherein roaming is triggered when one of the trigger counters associated with the data rate shift trigger event is equal to or exceeds the maximum data rate shift trigger value.

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14. The method as recited in claim 10, wherein roaming is triggered when one of the trigger counters associated with the signal strength trigger event is less than the minimum signal strength trigger value.

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15. The method as recited in claim 1, wherein detecting a speed of the network device is performed using a GPS.

16. The method as recited in claim 1, wherein the network device is a Mobile Node, the method further comprising:

registering with a Home Agent via a new Foreign Agent using a new Access Point when roaming is triggered, wherein the Mobile Node is within a coverage

area of the new Foreign Agent and the new Access Point.

17. The method as recited in claim 16, further comprising:

de-registering with the Home Agent via a new Foreign Agent using a new
5 Access Point, wherein the Mobile Node is no longer within a coverage area of the previous
Foreign Agent.

18. The method as recited in claim 1, wherein the network device is a Mobile
Node, and wherein when roaming is triggered, the Mobile Node is no longer within a
10 coverage area of a Foreign Agent via which the mobile node has registered with its Home
Agent.

19. The method as recited in claim 1, wherein when roaming is triggered, the
network device is no longer within a coverage area of an Access Point servicing the
15 network device.

20. A method of triggering roaming in a network device, comprising:
detecting a speed of the network device;
20 ascertaining one or more trigger values corresponding to one or more trigger events
at the speed of the network device;
maintaining one or more trigger counters associated with the one or more trigger
events; and
triggering roaming when one of the trigger counters associated with one of the

trigger events is less than or equal to one of the trigger values corresponding to the one of the trigger events at the speed of the network device.

21. A method of triggering roaming in a network device, comprising:

5 detecting a speed of the network device;

modifying one or more trigger values corresponding to one or more trigger events such that the one or more trigger values correspond to the speed of the network device;

maintaining one or more trigger counters associated with the one or more trigger events; and

10 triggering roaming when one of the trigger counters associated with one of the trigger events is equal to or exceeds one of the trigger values corresponding to the one of the trigger events at the speed of the network device.

22. The method as recited in claim 21, wherein modifying one or more trigger values comprises:

15 multiplying the one or more trigger values by one or more multiplying factors, wherein each of the multiplying factors corresponds to the speed of the network device.

20 23. The method as recited in claim 22, wherein each of the multiplying factors decreases the one or more trigger values when the speed of the network device increases.

24. The method as recited in claim 22, wherein each of the multiplying factors

increases the one or more trigger values when the speed of the network device decreases.

25. The method as recited in claim 22, further comprising:

ascertaining the multiplying factors corresponding to the speed of
the network device.

26. The method as recited in claim 22, wherein multiplying comprises:

multiplying the one or more trigger values by a single multiplying factor.

27. The method as recited in claim 22, wherein multiplying comprises:

multiplying each of the trigger values by a different multiplying factor, wherein the
multiplying factor corresponds to the trigger event.

28. The method as recited in claim 1, wherein the network device is a Mobile

Node, the method further comprising:

registering with a Home Agent via a Foreign Agent when roaming is
triggered, wherein the Mobile Node is within a coverage area of the Foreign Agent.

29. The method as recited in claim 28, further comprising:

de-registering with the Home Agent via a new Foreign Agent, wherein the
Mobile Node is no longer within a coverage area of the previous Foreign Agent.

30. The method as recited in claim 1, wherein the network device is a Mobile

Node, and wherein when roaming is triggered, the Mobile Node is no longer within a coverage area of a Foreign Agent via which the mobile node has registered with its Home Agent.

5 31. A method of triggering roaming in a network device, comprising:
detecting a speed of the network device;
modifying one or more trigger values corresponding to one or more trigger events
such that the one or more trigger values correspond to the speed of the network device;
maintaining one or more trigger counters associated with the one or more trigger
10 events; and
triggering roaming when one of the trigger counters associated with one of the
trigger events is less than or equal to one of the trigger values corresponding to the one of
the trigger events at the speed of the network device.

15 32. A computer-readable medium storing thereon computer-readable
instructions for triggering roaming in a network device, comprising:
instructions for detecting a speed of the network device;
instructions for ascertaining one or more trigger values corresponding to one or
more trigger events at the speed of the network device;
20 instructions for maintaining one or more trigger counters associated with the one or
more trigger events; and
instructions for triggering roaming when one of the trigger counters associated with
one of the trigger events is equal to or exceeds one of the trigger values corresponding to
the one of the trigger events at the speed of the network device.

33. An apparatus for triggering roaming in a network device, comprising:
means for detecting a speed of the network device;
means for ascertaining one or more trigger values corresponding to one or more
5 trigger events at the speed of the network device;
means for maintaining one or more trigger counters associated with the one or
more trigger events; and
means for triggering roaming when one of the trigger counters associated with one
of the trigger events is equal to or exceeds one of the trigger values corresponding to the
10 one of the trigger events at the speed of the network device.

34. An apparatus for triggering roaming in a network device, comprising:
a processor; and
a memory, at least one of the processor and the memory adapted for:
15 detecting a speed of the network device;
ascertaining one or more trigger values corresponding to one or more
trigger events at the speed of the network device;
maintaining one or more trigger counters associated with the one or more
trigger events; and
20 triggering roaming when one of the trigger counters associated with one of the
trigger events is equal to or exceeds one of the trigger values corresponding to the one of
the trigger events at the speed of the network device.